## WE CLAIM:

1. A method of forming a cover on a golf ball comprising:

positioning a spherical uncovered golf ball product in the center of a mold, the mold having a spherical mold surface,

closing the mold around the golf ball product,

mixing a polyurethane prepolymer and a curing agent to form a thermoset reaction mixture,

injecting the reaction mixture into the mold to cover the golf ball product therein,

allowing the reaction mixture to gel and form a golf ball, and

opening the mold and removing the golf ball within about 10 to 60 seconds after the injecting step.

- 2. The method of claim 1 in which the spherical mold surface includes projections for forming dimples in the cover of the golf ball.
- 3. The method of claim 1 in which said step of injecting the reaction mixture into the closed mold is performed within 0.5 to 10 seconds.
- 4. The method of claim 1 in which the polyurethane prepolymer has a viscosity of less than 1000 cps.
- 5. The method of claim 4 in which the curing agent has a viscosity of less than 2000 cps at 25°C.
- 6. The method of claim 1 in which the curing agent has a viscosity of less than 2000 cps at 25°C.

- 7. The method of claim 1 in which the uncovered golf ball product is a wound golf ball core.
- 8. The method of claim 1 in which the uncovered golf ball product is a solid core.
- 9. The method of claim 1 in which the uncovered golf ball product comprises a solid core and a mantle layer surrounding the core.
- 10. The method of claim 1 in which the uncovered golf ball product comprises a solid core and a lattice structure over the core.
- 11. The method of claim 1 in which the polyurethane prepolymer is selected from the class consisting of meta-toluene diisocyanate, 4,4'-diphenylmethane diisocyanate, p-mdi, 3,3'-dimethyl-4,4- biphenyl diisocyanate, naphthalene diisocyanate, and para-phenylene diisocyanate.
- 12. The method of claim 1 in which the mold is opened and the golf ball is removed about 45 seconds after the injecting step.
- 13. A method of forming a golf ball product comprising the steps of:

mixing a polyurethane prepolymer and a curing agent to form a thermoset reaction mixture,

injecting the reaction mixture into a closed mold having a cavity,

allowing the reaction mixture to gel and form a molded product, and

opening the mold and removing the molded product within about 10 to 60 seconds after the injecting step.

- 14. The method of claim 13 in which said step of injecting the reaction mixture into the closed mold is performed within 0.5 to 10 seconds.
- 15. The method of claim 13 in which the mold cavity is spherical.